

21981
 S/020/61/137/005/025/026
 B103/B208

Adsorption of ions of some metals ...

Таблица 2

Адсорбция различных элементов из воды при промывке германия и кремния

№ Элемент	Конц. элемента в растворе, % 11	$n_{\text{э}} \frac{\text{ст}}{\text{см}^2}$ 14	Конц. элемента в растворе, % 11	$n_{\text{э}} \frac{\text{ст}}{\text{см}^2}$ 15
14) Германий				
1) Фосфор	$6,10 \cdot 10^{-3}$	$1,16 \cdot 10^{16}$	$6,10 \cdot 10^{-4}$	$9,85 \cdot 10^{16}$
2) Железо	$5,74 \cdot 10^{-3}$	$4,65 \cdot 10^{14}$	$5,0 \cdot 10^{-4}$	$1,50 \cdot 10^{15}$
3) Медь	$9,90 \cdot 10^{-3}$	$1,38 \cdot 10^{15}$	$1,12 \cdot 10^{-4}$	$2,15 \cdot 10^{15}$
4) Серебро	$5,0 \cdot 10^{-3}$	$3,84 \cdot 10^{17}$	$2,49 \cdot 10^{-3}$	$1,03 \cdot 10^{15}$
5) Золото	$1,45 \cdot 10^{-3}$	$3,20 \cdot 10^{16}$	$8,80 \cdot 10^{-4}$	$2,24 \cdot 10^{12}$
6) Цинк	$1,92 \cdot 10^{-3}$	$8,55 \cdot 10^{14}$	$3,19 \cdot 10^{-4}$	$2,59 \cdot 10^{14}$
7) Индий	$1,0 \cdot 10^{-3}$	$2,48 \cdot 10^{17}$	$1,0 \cdot 10^{-2}$	$1,24 \cdot 10^{17}$
8) Натрий	$2,06 \cdot 10^{-3}$	$9,35 \cdot 10^{15}$	$1,03 \cdot 10^{-1}$	$6,40 \cdot 10^{16}$
9) Рубидий	$1,0 \cdot 10^{-3}$	$2,27 \cdot 10^{15}$	$8,10 \cdot 10^{-3}$	$8,70 \cdot 10^{14}$
10) Сурьма	$1,0 \cdot 10^{-3}$	$1,11 \cdot 10^{17}$	$1,0 \cdot 10^{-3}$	$2,12 \cdot 10^{16}$

Table 2. Adsorption of elements from water when rinsing Ge and Si. Legend: 1-13 as in Table 1; 14) germanium; 15) silicon.

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Table 3. Concentration of the adsorbed element after the treatment, in % of the initial amount. Legend: 1-15 as in Table 1; 16) ten rinsings with hot twice-distilled water; 17) - 20) heating for 10 min in a solution of: 17) dithizone; 18) KCN; 19) CH_3CH ; 20) Trilon-B.

Таблица 3
Количество оставшегося элемента после обработки образцов в процентах к первоначальному количеству

Элемент:	10-мин. нагревание в растворе	10-мин. нагревание в растворе			
		дити- зона 4)	KCN 4)	CH_3CN 4)	трило- на-Б 20)
Медь	68,6	50,0	8,0	5,1	88,0
Серебро	39,4	8,0	0,1	0,3	—
Золото	38,9	93	0,2	1,2	41,2
Индий	92,3	99,1	16,0	67,0	5,6

// Германия

Медь	48,6	50,0	8,0	5,1	88,0
Серебро	39,4	8,0	0,1	0,3	—
Золото	38,9	93	0,2	1,2	41,2
Индий	92,3	99,1	16,0	67,0	5,6

// Кремниевая

Медь	4,4	0,5	0,2	0,5	6,6
Серебро	92,1	1,0	1,0	21	42
Золото	90,5	80	25	59	—

Card 8/8

SOTNIKOV, V.S.; BELANOVSKIY, A.S.; NIKISHOVA, F.B.

Adsorption of ions of certain metals from water during silicon
washing. Part 4. Radiokhimia 4 no.6:725-731 '62.
(MIRA 16:1)

(Metals)

(Silicon)

(Adsorption)

35237-65 DPL(a)/EWT(b)/EWP(1)/T/EWP(t)/EWP(b) Pg-4 IJP(c) JD/JB/
GS/WH

ACCESSION NR: AT5015393

UR/0001/65/000/000/0149/0154

541.183:54-128.4 :546.289+546.28-121+533.62

AUTHOR: Sotnikov, V. S.; Belanovskiy, A. S.

TITLE: Adsorption of gold from aqueous solutions on germanium, silicon, and quartz during their washing

SOURCE: AN SSSR, Otdeleniya obshchey i tekhnicheskoy khimii, Soosazhdeniya i adsorbsiya radioaktivnykh elementov (Coprecipitation and adsorption of radioactive elements). Moscow, Izd-vo Nauka, 1965, 149-154

TOPIC TAGS: gold adsorption, germanium washing, silicon washing, quartz washing, Freundlich equation, chemical etching

ABSTRACT: A study of the adsorption of gold on germanium, silicon, and quartz from aqueous solutions showed that it increases with the time of contact between the samples and the solution, is proportional to the Au content in solution at low concentrations (10^{-7} - 10^{-4} %), and obeys the Freundlich equation ($n = kC^{\frac{1}{n}}$). The desorption of gold in water at room temperature and at the boiling point is only partial, indicating that gold is strongly bound to the surface of Ge, Si, and quartz. Gold separates in the elemental state on germanium and is adsorbed primarily in the ionic state on silicon and quartz; in the case of the latter two ad-

Card 1/2

L 55337-65

ACCESSION NR: AT5015393

sorbents, the mechanism may involve displacement of H^+ ions from OH groups entering into the structure of the hydrated surface compounds. Differences in the initial adsorption of gold on silicon and quartz are apparently due to the fact that treatment with the etchant SR-8 (1 pt. HF to 4 pts. HNO_3) produces a rougher surface on quartz than on silicon. It is postulated that the amorphous structure of SiO_2 on the surface of quartz adsorbs gold to a lesser degree than does the crystalline SiO_2 on silicon; a similar relationship is observed in the adsorption of Ag^+ , In^{3+} , and SO_4^{2-} on quartz. Orig. art. has: 10 figures.

ASSOCIATION: None

SUBMITTED: 05Oct63

ENCL: 00

SUB CODE: IC, G

NO REF Sov: 005

OTHER: 003

DR
Card 2/2

L 55336-65 EWP(e)/EWT(h)/EWP(i)/T/EWP(t)/EWP(b) Pg-4 IUP(c) JD/
JG/GS/WI

ACCESSION NR: AT5015394 UR/0000/65/000/000/0154/0158
541.183.5;54-128.4;54-145.2;621.79.025;546.289+
546.28+666.192

AUTHOR: Sotnikov, V. S.; Belanovskiy, A. S.

TITLE: Adsorption of gold from hydrogen peroxide, KOH, and SR-8 during chemical etching of germanium, silicon, and quartz

SOURCE: AN SSSR. Otdeleniye obshchey i tekhnicheskoy khimii. Soosazhdeleniye i adsorbsiya radioaktivnykh elementov (Coprecipitation and adsorption of radioactive elements). Moscow, Izd-vo Nauka, 1965, 154-158

TOPIC TAGS: gold adsorption, germanium etching, silicon etching, quartz etching, chemical etching, hydrofluoric acid, nitric acid, potassium hydroxide, hydrogen peroxide

ABSTRACT: The adsorption of gold was studied as a function of the gold concentration in the solution and of the time of contact between the samples and the solution. In the case of H₂O₂ and KOH on germanium and KOH and SR-8 (1 pt. HF to 4 pts. HNO₃) on silicon, the adsorption of gold increases in proportion to

L 55336-65

ACCESSION NR: AT5015394

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in adsorption from SR-8 as compared to the adsorption from KOH was observed. The adsorption of gold on germanium is somewhat greater from KOH than from H₂O₂, apparently owing to the difference in the electrochemical potentials of germanium in these etchants. A similar relationship was observed in the case of KOH and SR-8 on samples of silicon and quartz, also as a result of the difference in the potentials of silicon (-960 mV in KOH and +200 mV in SR-8). The difference in the adsorption on quartz is explained in terms of the structure of the surface layer. In the study of the adsorption of gold as a function of contact time, it was noted that a slight decrease in adsorption on germanium and silicon from H₂O₂ and SR-8 solutions takes place at the very start. Adsorption from KOH increases with time; this may also be due to a change (drop) in the silicon potential with time. Gold was found to be adsorbed on quartz from KOH approximately 10 times as fast as from SR-8, owing to the difference in the structure of the surface compounds. Orig. art. has: 8 figures.

ASSOCIATION: None

SUBMITTED: 06Jan64

NO REF SOV: 003

ENCL: 00

OTHER: 001

SUB CODE: IC, GL

Card 2/2

L 59594-65 EHT(m)/EXP(t)/EXP(b) IJP(c) JD
ACCESSION NR: AP5017452

AM/0020/65/162/005/1105/1108

AUTHOR: Sotnikov, V. S.; Belanovskiy, A. S. B

TITLE: Adsorption of the ions of certain metals from electrolytes during etching of germanium, silicon, and quartz

SOURCE: AN SSSR. Doklady, v. 162, no. 5, 1965, 1105-1108

TOPIC TAGS: germanium, silicon, quartz, ion adsorption, etching, Freundlich equation

ABSTRACT: The article discusses the adsorption of Cu, Ag, Au, In, Sb, and Zn ions from the following etchants: CP (1:4 mixture of 49% HF and 65% HNO₃), 20% KOH on the surface of Ge, Si, and quartz, and 30% H₂O₂ on the surface of Ge. The adsorption was studied as a function of the content of these ions in the solutions and of the time of contact between the samples and the solutions. The adsorption isotherms obtained obey the Freundlich equation over a wide concentration range; constants of the Freundlich equations are tabulated. The degree of adsorption varies with the type of solution in which the adsorption occurs: for example, it was 1-2 orders of magnitude greater in KOH than in CP in all cases. An exami-

Cord 1/2

L 59594-65

ACCESSION NR: AP5017459

nation of the adsorption mechanism leads the authors to the conclusion that the amount of adsorbed substance which separates in the elemental state should be greater than in the case of the ionic state. For instance, on quartz, in which Si is present in the highest valence state, only ionic adsorption can occur; indeed, the adsorption on quartz was lower than on Ge or Si, and did not exceed the value corresponding to a monolayer (about 10^{15} atoms/cm 2). It was also found that the conduction type (n or p) of Ge and Si does not affect the adsorption of the elements studied. Orig. art. has: 2 figures and 2 tables.

ASSOCIATION: None

SUBMITTED: 02Dec64

ENCL: 00

SUB CODE: IC, NP

NO REF Sov: 004

OTHER: 004

Card 2/2

L 39085-66 EWP(e)/ETI(m)/T/EWP(t)/ETI IJP(c) WH/DS/JD

ACC NR: AP6022875

SOURCE CODE: UR/0186/66/008/002/0171/0182

AUTHOR: Sotnikov, V. S.; Belanovskiy, A. S.

ORG: none

TITLE: On the adsorption of ions of certain metals from electrolytes on the surface of germanium, silicon, and quartz

SOURCE: Radiokhimiya, v. 8, no. 2, 1966, 171-182

TOPIC TAGS: germanium, silicon, quartz, adsorption, etched crystal, copper, silver, gold, indium, antimony, zinc

ABSTRACT: The paper offers data on the adsorption of copper, silver, gold, indium, antimony, and zinc ions from the chemical etchants CP (a 1:4 mixture of 49% HF and 65% HNO₃) and 20% KOH on the surface of germanium, silicon, and quartz, and also from 30% H₂O₂ on the surface of germanium, as a function of the content of these metals in the solution and of the etching time. The temperature was 20°C for CP, 107°C (boiling point) for KOH, and 104°C (boiling point) for H₂O₂. The adsorption on quartz was studied in order to elucidate the mechanism of adsorption on silicon, whose surface is usually coated with a thin film of SiO₂, but the results are also independently significant in view of the wide use of quartz apparatus. It is shown that at a content of the above impurities from 10⁻⁵ to 10⁻¹% in the etchants, the adsorption values

Cord 1/2

UDC: 541.183.5:54-128.4

L 39085-66

ACC NR: AP6022875

range from 10^{11} to 10^{16} atoms/cm², and that in the indicated systems, these values obey Freundlich's rule and are independent of the type of conduction in germanium and silicon. A mechanism of adsorption of ions from the electrolytes on the surface of germanium, silicon, and quartz is proposed. Orig. art. has: 11 figures.

SUB CODE: 07/ SUBM DATE: 30Dec64/ ORIG REF: 011/ OTH REF: 008

Card 2/21116P

ACC NR: AP7007204

SOURCE CODE: UR/0186/66/008/006/0617/0621

AUTHOR: Sotnikov, V. S.; Belanovskiy, A. S.; Trakhtenberg, A. D.

ORG: none

TITLE: On the adsorption of metal ions from H₂O, H₂O₂ and KOH on the surface of electron-hole germanium and silicon junctions

SOURCE: Radiokhimiya, v. 8, no. 6, 1966, 617-621

TOPIC TAGS: adsorption, hydrogen peroxide, potassium hydroxide, pn junction

ABSTRACT: The adsorption of Cu, Ag, Au and In ions from H₂O, H₂O₂ and KOH on parts making up a germanium p-n-p junction (TM-5) and silicon p-n-p (P104-106) and n-p-n (P 101-103) junctions was studied. It is shown that a considerable contamination of the solutions with elements constituting the junction takes place during etching (the amount of impurities in the solutions increases by 2 to 3 orders of magnitude). Thus, adsorption on the junctions is very important, since in contrast to germanium and silicon crystals, etching of the junctions occurs in a solution with a high impurity content. Cu and In impurities, adsorbed by the surface of junctions of types P101-103 and TM-5, cause a considerable increase of I_{co} (zero collector current). The various distributions of the adsorbed impurities on different parts of junctions of various types were studied by means of autoradiographic photographs. Orig. art. has 3 tables.

20/
SUB CODE: 07/ SUBM DATE: 21Jun65/ ORIG REF: 004/ OTH REF: 003
Card 1/1 UDC: 541.183:546.3

YURCHENKO, Yakov Yakovlevich, kandidat pedagogicheskikh nauk, podpolkovnik;
BELANOVSKIY, A.V., gvardii polkovnik, redaktor; SOMOLOVA, G.P..
tekhnicheskiy redaktor

[Soviet military discipline] Sovetskaia voinskaia distsiplina.
Moskva, Voen. izd-vo Ministerstva obor. SSSR, 1956. 110 p.
(Military discipline) (MIRA 10:3)

BELANOVSKIY, A., gvardii polkovnik.

High discipline is a guarantee of success in battle and training.
Kryl.rod. 7 no.8:2-3 Ag '56. (MLRA 9:12)
(Military discipline)

15ELANOVSKIY, H. V.

BAKAYEV, Nikolay Vasil'yevich, podpolkovnik; BELANOVSKIY, A.Y., gvardii polkovnik, redaktor; MYASHIKOVA, T.F., tekhnicheskij redaktor

[Training expert antiaircraft gunners] Rastit' masterov zenitnogo ognia; iz opyta partiino-politicheskogo obespecheniya zenitno-artilleriiskikh strel'b. Moskva, Voen. izd-vo M-va obr. SSSR, 1956. 83 p.
(Antiaircraft guns) (MIRA 10:4)

Belanovskiy, A.V.

ROSHCHIN, Ivan Illarionovich, podpolkovnik; BELANOVSKIY, A.V., polkovnik,
redaktor; MEDNIKOVA, A.N., tekhnicheskij redaktor

[Instruction in the natural sciences for soldiers] Estestvenno-nauchnaja propaganda v voiskakh. Moskva, Voen.izd-vo M-va obor.
SSSR, 1957. 55 p.

(MLRA 10:7)

(Soldiers--Education, Nonmilitary)
(Science--Study and teaching)

BELANOVSKIY, A.V.

KAMSYUK, Stepan Andreyevich, polkovnik; BELANOVSKIY, A.V., polkovnik,
redaktor; MEZHERITSKAYA, N.P., tekhnicheskiy redaktor

[Organizing soldiers' leisure in camp] Organizatsiya dosuga voinov
v lageriakh. Izd. 2-oe, perer. Moskva, Voen.izd-vo M-va obor.
SSSR, 1957. 71 p.
(MILRA 10:7)
(Soldiers--Recreation)

BELANOVSKIY, I. D.

Dvukrylyye vragi zhivotnykh i mery bor'by s nimi (Dipterous Animal Pests and Measures for Combatting Them). Kiev. I zd-vo Akad. Nauk Ukrainian SSR. 1950. 32 pages with illustrations.

U-5235

"APPROVED FOR RELEASE: 06/06/2000

CIA-RDP86-00513R000204220009-2

BELANOVSKIY, I.D.

Diptera of the southwestern Pamirs. Bank.zap.Kiev.uu.9 no.6:
133-143 '50. (Pamirs--Diptera) (MIRA 9:10)

APPROVED FOR RELEASE: 06/06/2000

CIA-RDP86-00513R000204220009-2"

BELANOVSKIY, I.D., professor.

New predator of the scale insect *Eriopeltis lichtensteini*.
Nauch.trudy Inst. ent. i fit. 2:291-292 '50. (NIRA 9:2)
(Scale insects) (Flies)

PA 19479

USSR/Biology (Agriculture) - Insects

Oct. 50
Pests

"History of the Biological Method of Combating Agricultural Pests and Results of Its Application in Practice. Utilization of Parasitic and Predatory Insects," I. D. Belanov'skiy

Study Inst. Zool., Akad. Nauk Ukrainsk SSR" Vol. IV, pp 186-140

In the West, biol methods have been successful only to a limited extent, specifically in subtropical and tropical countries as applied to Coccoidea. Better results have been achieved

19479

USSR/Biology (Agriculture) - Insect Pests (Contd)

Oct. 50
Pests (Contd)

In the USSR. Work was done along the following lines: use of eggdevouring trichogrammatidae in combating various pests, particularly the lesser apple worm; use of parasitic and predatory insects for exterminating Coccoidea, particularly on citrus cultures; application of biol methods in combating blood lice on apple trees; measures for combating bread cereal bugs (*Eurygaster*). Application of biol methods is particularly promising under a socialist agricultural economy.

19479

IC

BYELANOVS'KYI, I.D.; DYADECHKO, M.P.; SVYRYDENKO, P.O., diysnyy chlen.
New parasite of the millet gnat Stenodiplosis panicis Rod. Dop. 4N UBSR no. 4:
291-296 '51. (MLRA 6:9)
1. Akademiya nauk Ukrayins'koyi RSR (for Svrydenko). 2. Instytut zoologiyi
i entomolohiyi ta fitopatolohiyi Akademiyi nauk Ukrayins'koyi RSR (for Byela-
nova'kyi and Dyadechko). (Parasites--Insects) (Hymenoptera)

БІЛАНІВСКІЙ, І.Д.

MARKEVICH, Aleksandr Prokof'yevich; KAS'YANENKO, V.G., akademik
AN USSR, redaktor; PIDOPLICHKO, I.O., doktor biologicheskikh
nauk, redaktor; BELONOVSKIY, I.D., doktor biologicheskikh nauk,
redaktor; BOSHIKOV, G.V., kandidat biologicheskikh nauk, redaktor;
SEMERNYA, I.M., redaktor izdatel'stva; ROZENTSVENYI, Ye.N.
tekhnredaktor

[Parasitic copepods of fishes of the U.S.S.R.] Paraziticheskie
veslonogie ryb SSSR. Kiev, Izd-vo Akad. nauk USSR, 1956.
258 p.

(Copepoda) (Parasites--Fishes)

(MLRA 10:4)

BELANOVSKIY, I.D.

Conditions of life on the European Continent during the Quaternary period. Trudy Kom.chety.per. no.26:120-122 '61. (MIRA 15:3)
(Europe--Paleontology)

BELANOVSKIY, Nikolay Grigor'yavich; YAKUSHIN, Leonid Leonidovich;
KHAYMOVICH, Moisey Shmulevich; KASPERSKAYA, Ye., red.; GUSAROV,
K., tekhn.red.

[Handbook for the shoe machinery operator] Spravochnik mokhanika-
obuvshchika. Kiev, Gos.izd-vo tekhn.lit-ry USSR, 1960. 426 p.
(Shoe machinery) (MIRA 13:5)

BELANOVSKIJ, Nikolay Grigor'evich [Bielanova'kyi, M.H.]; SHOR,
Roman Moiseyevich; LYASHCHENKO, T.V., red.; STARODUB,
T.O., tekhn. red.

[Modernization of the equipment of the leather industry]
Modernizatsiia ustavkuvannia shkirianoi promyslovosti.
Kyiv, Derztekhydav URSR, 1961. 102 p. (MIRA 16:9)
(Leather industry--Equipment and supplies)

BELANOVSKIY, V.

Melting out beef fat in the AVZh apparatus. Miss. ind. SSSR 29
no. 4:13-14 '58. (MIRA 11:8)

1. Kremenchugskiy myasokombinat.
(Rendering apparatus)

BFIANSKY, A.

"Driver's Examinations in the First Course of the Basic Organization of the League for Cooperation with the Army in the Kosice Region." p. 329
"It Was Entrusted to Him by the Working People; A Short Story." p. 330 (Svet Motoru, Vol. 7, no. 147, June 1953, Praha)

S0: Monthly List of East European Accessions, Vol. 3, no. 2, Library of Congress,
Feb. 1954, Uncl.

BALAN Antonin

U1

UVOD DO ATOMOVÉ FYZIKY. I. Karel Kaspar. Fyzikální optika; uvod do fyziky elektronového obalu atomu. [H. Antonaček: Základy fyziky atomového jádra. - vyd. Čes. Vysoká Státní pedagogická škola, 1948, 64, 71 p. (Učené texty vysokých škol).] [Introduction to atomic physics. I. Physical optics; an introduction to the physics of the electron shell of the atom, Karel Kaspar. II. Physics of the atomic nucleus, Antonín Kotek. Eds.]

4-6-54
RMT

E.P.A.S. January 1954 Vol 3. #1

BELAR, ANTONIN

Zareni a stony; vybrane kapitoly. (Vyd.1.) Praha, Statni pedagogicke
nakl., 1957. 200 p. (Ucebni texty vysokych skol) (Radiation and atoms
a university textbook. 1st ed. 85 diagrs. (In pocket) , Tables)

SO: Monthly Index of East European Accession (EEAI) LC, Vol. 7, no. 5, May 1958

ELAR, Antonin

Elektrina a magnetismus. (Electricity and Magnetism; a textbook. 1st ed. illus.)
For the students of the School of Education. Prague, SPN, 1957. 295 p.

Bibliograficky katalog, CSR, Ceske knihy, No. 33. 24 Sept 57. p. 709.

BELAS, F.

Yugoslavia (430)

Science

Antimon; priručnik za geologe. (Preveo a ruskog:
Slobodan Jankovic) Beograd, Izdavackostamparsko
preduzeće Saveta za energetiku i ekstraktivnu industriju,
1951, 45 p. (Antimony; a manual for geologists.
Translated from the Russian. Bibl.)

East European Accessions List, Library of Congress,
Vol. 2, Nos. 1 & 2, Jan.-Feb., 1953, UNCLASSIFIED

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000204220009-2"

PITEA, P., dr.; CUGUIANU, M., dr.; BELASCU, M., extern

Considerations on an unusual case of dermatomyositis. Med. intern.
13 no.12:1703-1706 D '61.

1. Lucrare efectuata in Clinica I medicala, Cluj, director acad.
A. Moga. (DERMATOMYOSITIS case reports)

BELASEVIC, K.

PETROVIC, L.; BELASEVIC, K.; IGNJATOVIC, B.

Determination of blood carbon monoxide in gas generators workers.

Glasn. Hig. inst., Beogr. 6 no.1-2:59-70 Jan-June 57.

(CARBON MONOXIDE, pois.

determ. of blood content in gas generator workers (Ser))

(OCCUPATIONAL DISEASES,

carbon monoxide pois. in gas generator workers, determ.

of blood content (Ser))

BELASH, A.S.; KOVALEV, A.F.; LINNIK, G.P.

Programmed control of a rotary excavator. Ugol' 39 no.5:71-72
My '64. (MIRA 17:8)

1. Institut avtomatiki Gosplana UkrSSR.

ATTACH A. S.

USSR/Mines and Mining
Mineral Industries

Aug 1947

"Excavation of Inter-cell Blocks by Sub-level
Drift Method," A. S. Belash, 1 p

"Gornyy Zhurnal" No 8

L. D. Gorodnyuk was the first to attempt this method of working untouched ore blocks. His work was conducted at No 1 Eastern Deposit of the Zheltaya Reka workings. Under similar conditions the described method is more effective than the method of sub-level caving.

17T68

BELASH, A.S., inzh.; SPEKTOR, M.A., inzh.

Remote and program control of underground transportation in
Swedish mines (from "Jernkontorets Annaler," no.6, 1961).
Gor.zhur. no.8:52-53 Ag '62. (MIRA 15:8)

1. Institut avtomatiki Gosudarstvennogo planovogo komiteta
Soveta Ministrov UkrSSR (for Belash). 2. Komitet po koordinatsii
nauchno-issledovatel'skikh rabot Soveta Ministrov UkrSSR, Kiyev
(for Spektor).

(Sweden--Mine railroads) (Remote control)

LINKIK, G.F., kand.tekhn.nauk; BELASH, A.S., inzh.

Blasting operations in Swedish mines. Ger. zhur. no.8:73-74 Ag '63.
(MIRA 16:9)

1. Institut avtomatiki Gosplan UkrSSR.
(Sweden—Blasting)

LINNIK, G.F., kand.tekhn.nauk; BELASH, A.S., inzh.

Shaft sinking in Sweden (from foreign periodicals). Shakht. stroi.
7 no.2:24-26 F '63. (MIA 16:3)
(Sweden—Shaft sinking)

KOVALEV, A.F., kand.tekhn.nauk; LINNIK, G.F., kand.tekhn.nauk; BELASH, A.S.,
inzh.

New tunnel excavator (from "Mine and Quarry Engineering," no.11,
1962). Shakht. stroi. 7 no.4:29 Ap '63. (MIRA 16:3)

KOVALEV, A.F., kand.tekhn.nauk; LINNIK, G F.. kand.tekhn.nauk; EFLASH,A.S.,
inzh.

Using hopper trains in mining. Shakht.stroi. 7 no.5:29-30 My
'63. (MIRA 17:4)

BELASH, A.S., inzh.; KOVALEV, A.F., inzh.; LINNIK, G.F., kand.tekhn.nauk

Using bucket loaders in sinking. Shakht. stroi. 7 no.7:30 Jl
'63. (MIRA 16:10)

BELASH, A.S., inzh.; KOVALEV, A.F., kand. tekhn. nauk;
~~LINNIK, G.F., kand. tekhn. nauk~~

Shaft sinking in Westoe, England. Shakht. stroi. 7
no.8:32 Ag '63. (MIRA 16:11)

BELASH, A.S., inzh.; LINNIK, G.F., kand. tekhn. nauk

Making large cross section workings, Shakht. stroi. 7
no.12:27 D'63.

(MIRA 17:5)

LINNIK, G.F., kand. tekhn. nauk; BELASH, A.S., inzh.

Rapid mining of a drift at the "Lorein" Mine in South Africa.
Shakht. stroi. 7 no.3832 Mr'63 (MIRA 1787)

~~BELASH, A.S., inzh.~~; KOVALEV, A.F., kand. tekhn. nauk; LINNIK, G.F., kand. tekhn. nauk

Transportation in Swedish mines. Gor. zhur. no.11:70-
71 N '63.

(MIRA 17:6)

HELASH, A.S., inzh.; LINNIK, G.F., kand. tekhn. nauk

Boring upraises in the United States. Shakht. stroi. 8 no.48
28-29 Ap'64 (MIRA 17:7)

LINNIK, G.F., kand.tekhn.nauk; KOVALEV, A.F., kand.tekhn.nauk; EELASH, A.S.,
inzh.; FEDOROVSKIY, V.V., inzh.; KRYLOV, Ye.G., inzh.;
KULINICH, N.T., inzh.; GAPON, A.M. technik.

Railroad switching from the machinist's cabin. Gor.zhur. no.2:
62-63 F '64 (MIRA 17:4)

1. Institut avtomatiki Gosplana UkrSSR, Kiiev.

LINNIK, G.F., kand. tekhn. nauk; BULASH, A.S., inzh.

Blasting large diameter boreholes in United States strip mines.
Shakht. stroi. 8 no.7:31-32 Jl '64. (MIRA 17:10)

BELASH, A.S.; KOVALEV, A.F.; LINNIK, G.F.

Sublevel caving at the Koskullskulla Mine. Gor. zhur.
no.8:76 Ag '64. (MIRA 17:10)

1. Institut avtomatiki Gosplana UkrSSR.

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CIA-RDP86-00513R000204220009-2

KOVALEV, A.F., kand. tekhn. nauk; LINNIK, G.F., kand. tekhn. nauk; BELASH,
A.S.; SHKUTA, E.I.; LUBENETS, V.A.; KUKHTA, P.V.

Advantages of using hardening filling in Krivoy Rog Basin
mines. Met. i gornorud. prom. no.1:56-59 Ja-F '64.

(MIRA 17:10)

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LINNIK, G.F., kand. tekhn. nauk; KOVALEV, A.F., kand. tekhn. nauk;
BELASH, A.S.

Hydraulic filling of abandoned mine workings in Sweden.
Met. i gornorud. prom. no.3:86-88 My-Je '64.

(MIRA 17:10)

BEILASH, A.S., inzh.

Drifting with the use of a loader-transporter and a conveyor.
(MIRA 17:12)
Shakht. stroi. 8 no.9:28 S '64.

BELASH, A.S.; LINNIX, G.Y., kand. tekhn. nauk; VOYTKO, S.N.

Technical and economic efficiency of automatically controlled
high-capacity rotary bucket excavators. Mat. i gornorud. prom.
no.4:68-69 Jl-Ag '65. (MIRA 18:10)

LINNIK, G.F., kand.tekhn.nauk; KOVALEV, A.F., kand.tekhn.nauk; BELASH, A.S.,
inzh.; FEDOROWSKIY, V.V., inzh.; KRYLOV, Ye.G., inzh.;
KULINICH, N.T., inzh.; GAPON, A.M., technik.

Railroad switching from the machinist's cabin. Gor.zhur. no.2:
62-63 F '64. (MIRA 17:4)

1. Institut avtomatiki Gosplana UkrSSR, Kiyev.

LENNTK, C.Y., Leningrad, 1951. REINHOLD, S.A. Koray, Moscow, 1951. LEF.,
Soviet spy in USA, USSR, Europe, Germany, France.

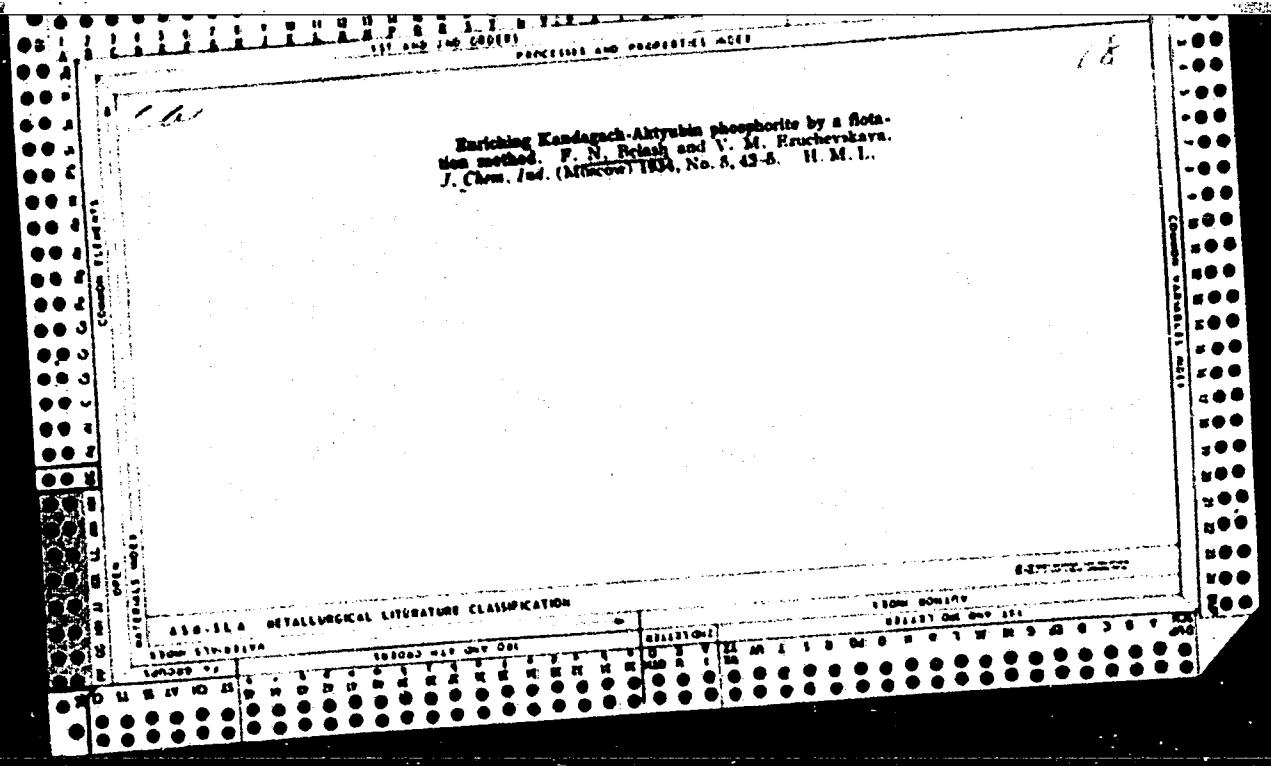
Technical efficiency of using hydraulic lifting at the rebar works
area. Ref. char. no. 10-49-52 C 165. (M.S. 18,11)

BELASH, Aleksandr Sergeyevich, inzh.; KOVALEV, Aleksey Fedotovich,
kand. tekhn. nauk; LINNIK, Grigoriy Filippovich, kand.
tekhn. nauk; NESTERENKO, Vladimir Vasil'yevich, inzh.;
SHKUTA, Eduard Ivanovich, inzh.; DUDKO, V.D., inzh.,
retsenzent; AFONINA, G.P., red.

[Improving systems of mining iron-ore deposits] Usover-
shenstvovanie sistem razrabotki zhelezorudnykh mest-
rozhdenii. Kiev, Tekhnika, 1965. 207 p. (MIRA 18:12)

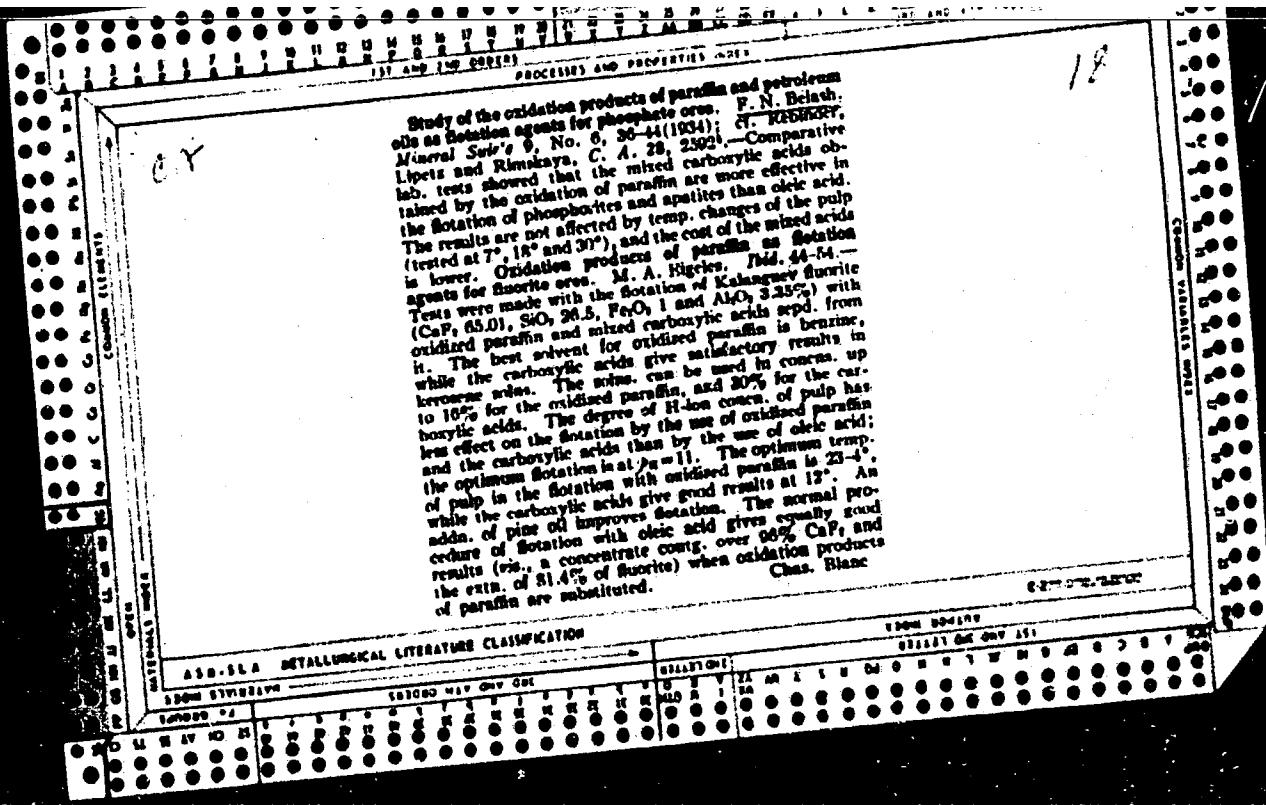
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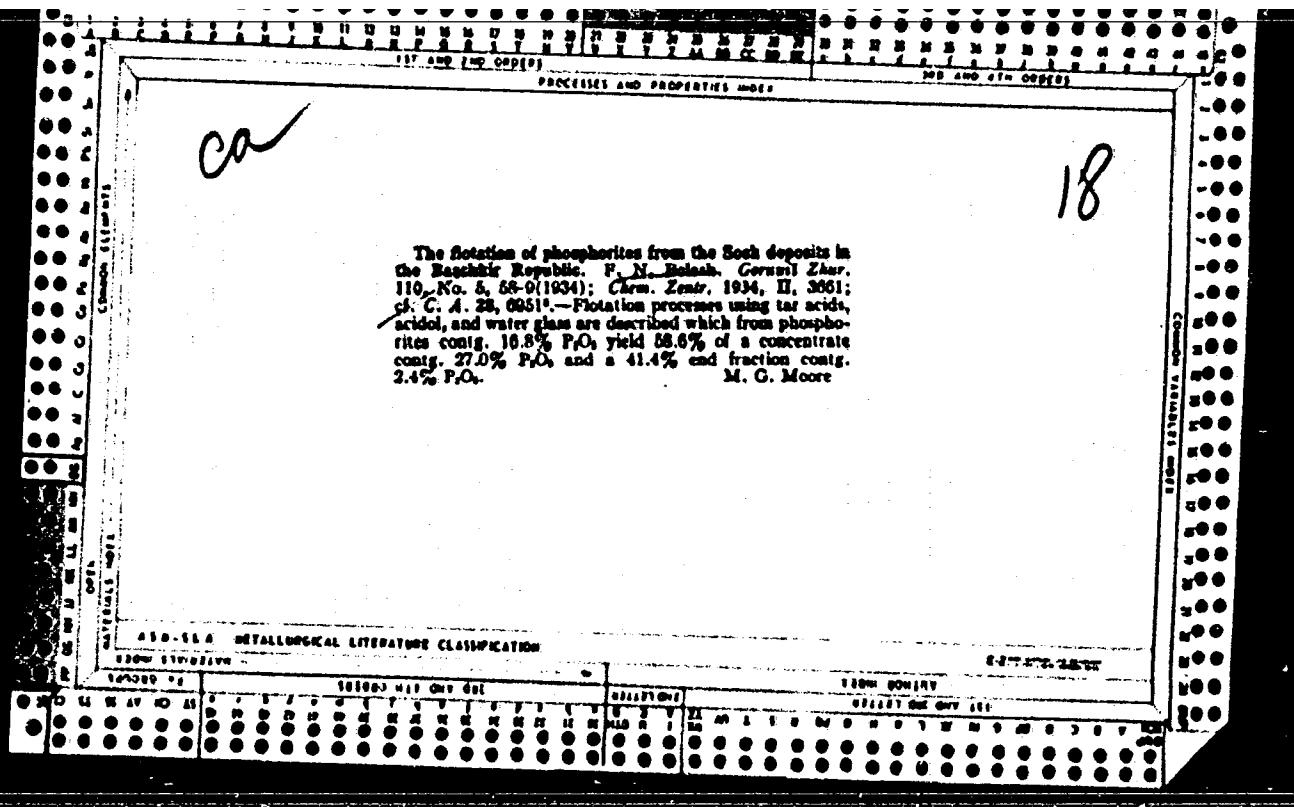
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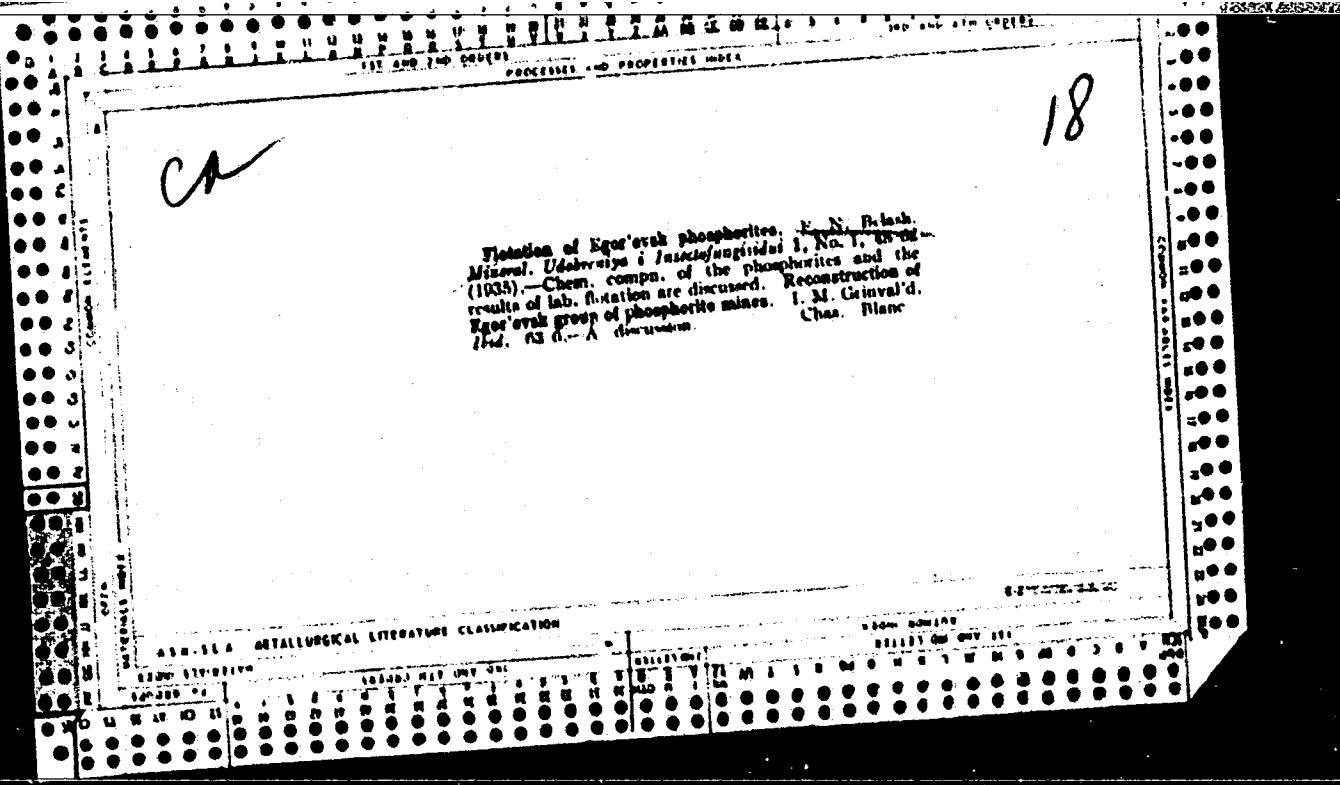


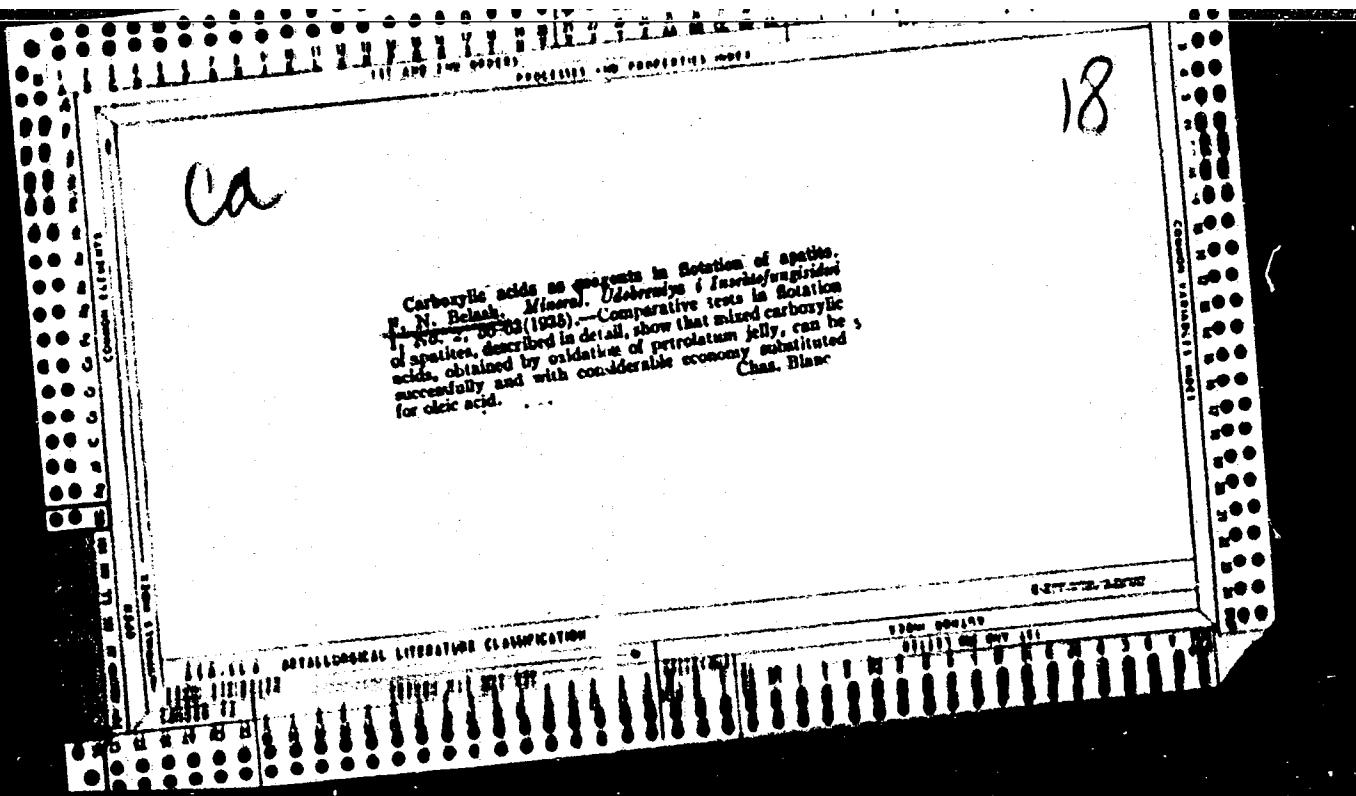
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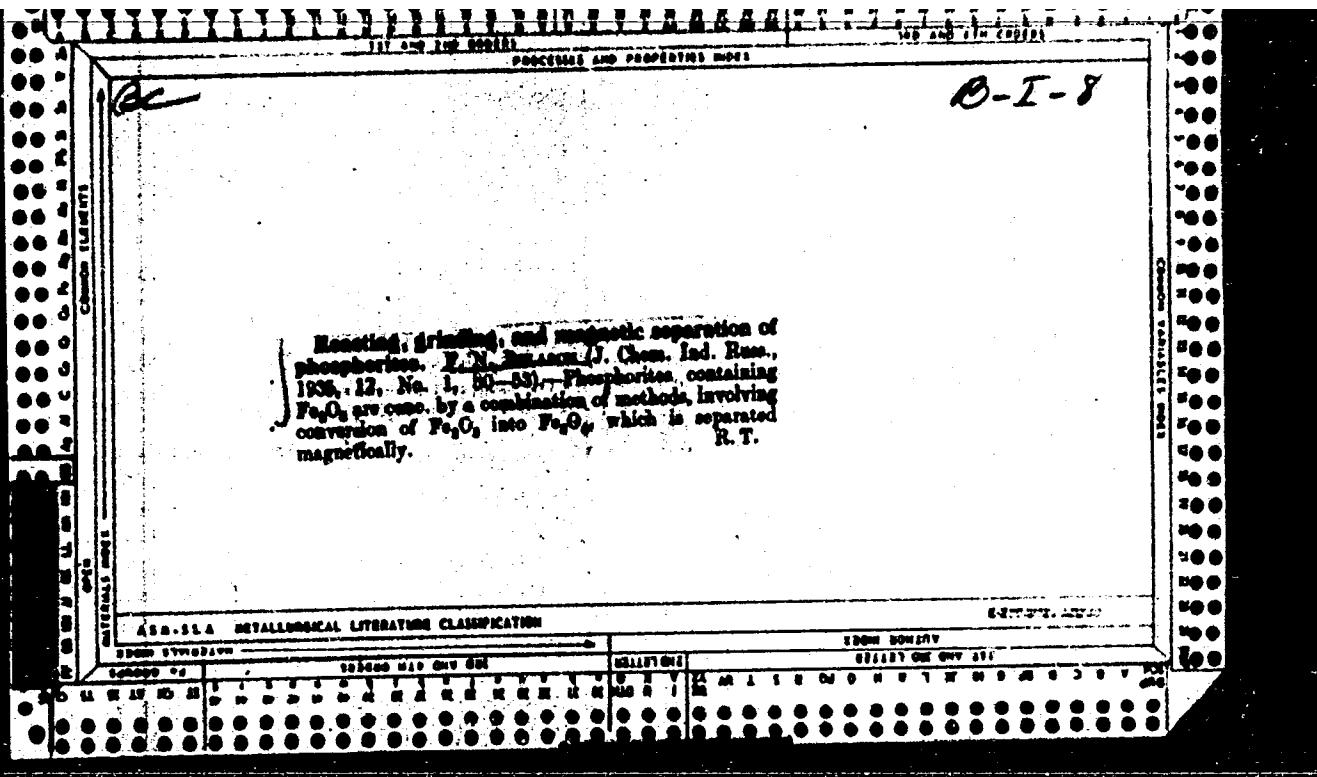
CIA-RDP86-00513R000204220009-2"











Concentration of Wjatak phosphates by use of the flotation method. P. N. Brash and V. M. Ruzchinskaya. *Cornyl Zhd.*, 1935, No. 2, 65-71; *No. 4*, 70-71 (1935); *Chem. Zentral.* 1936, I, 3183; cf. *C. A.* 30, 20171; 30, 60001. The phosphates investigated are best ground to a grain size of 0.5 mm. and mixed with sand prior to flotation. Naphthenic acid was used as a gallikate, pine oil or "axidol" as froth producer. The flotation was carried out at 15°; an increase in temp. of 7° produces no marked undesirable effects. The highest concn. obtained was 28.9% P_2O_5 and 3.7-3.5% R_2O_3 . W. A. M. Boettcher. Bleaching earths. H. Goette. *Allg. Oel-* u. Fett-Ztg.

18

PROCESSES AND EQUIPMENT									
<i>ea</i>									
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Concentration of Witbank phosphorites by use of the flotation method. P. N. Belash and V. M. Ermakovskaya. <i>Gornyi Zavod</i> , 1937, No. 3, 68-71; No. 4, 70-4 (1938); <i>Chem. Zvest.</i> 1938, I, 2143; cf. <i>C. A.</i> 38, 24171-30, 240911. The phosphorites investigated are best ground to a grain size of 0.8 mm. and mixed with sand prior to flotation. Naphthenic acid was used as a gatherer, pine oil or "aristol" as froth producers. The flotation was carried out at 15°; an increase in temp. of 7° produces no marked undesirable effects. The highest concn. obtained was 28.9% P_2O_5 and 3.7-3.5% R_2O_3 . W. A. M.									
Restoring bleaching earths. H. Goette. <i>Allgem. Oef. u. Fett-Ztg.</i> , 54, 236 (1937).—A review of patents. M. M. Pickar									
AT&T BELL LABORATORIES METALLURGICAL LITERATURE CLASSIFICATION									
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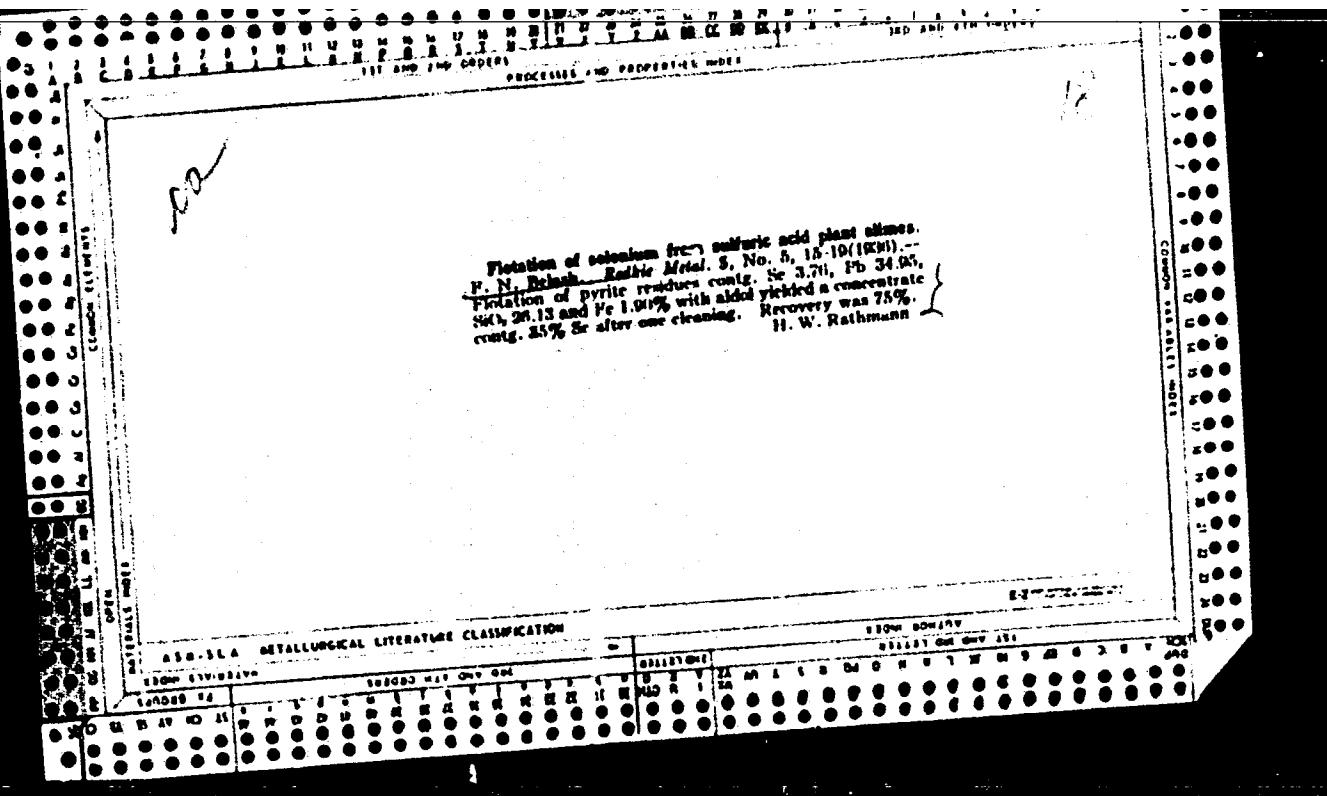
ca

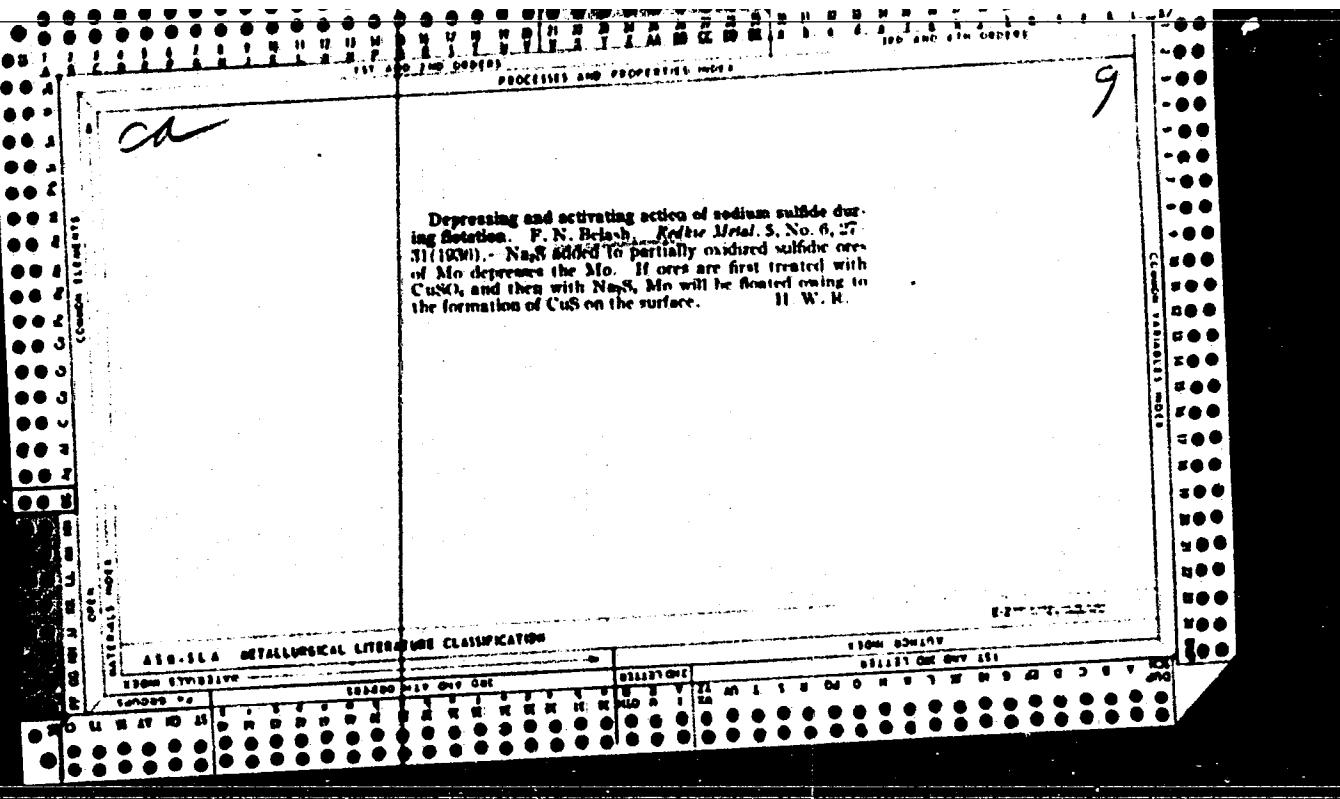
9

Floating of bismuth copper ores at Adarashman (Tadzhikistan). E. N. Belash. Gorno-Oborugol' Zhar. No. 3, 24 (1980). The ore contains chalcopyrite, covellite, tennantite, chalcocite, hematite, pyrite, Bi buster and Zn blende. Ass. copper is: Bi 0.8%, Cu 1.3, Fe 13.2%, Al 0.4, Mg 0.7, S 2.3% and traces of Pb and Ca. Flotation was conducted on a semi-plant scale in a 4-ton floating app., consisting of a 1000 x 200 mm Hardinge control ball mill, a Dorn classifier and a 12-chamber Fuhrenwald flotation machine. The ore was ground in 10-mm. void. Liquid was 1:8; the time of main flotation was 11-14 min. The following quantities are recommended: lime 2.0, liquid glass 0.6, Na₂S 0.02, Fe granules 0.075, pine oil 0.02 kg. per ton. Concentrate had 21.6-27% Cu and 5.1-6.4% Bi. Ratio of Pb from concentrate was 92.93% and of Bi 96.94%. Cu and Bi content in tailings vary from traces to 0.01% and 0.02%.

B. Z. K.

ASU-SEA METALLURGICAL LITERATURE CLASSIFICATION



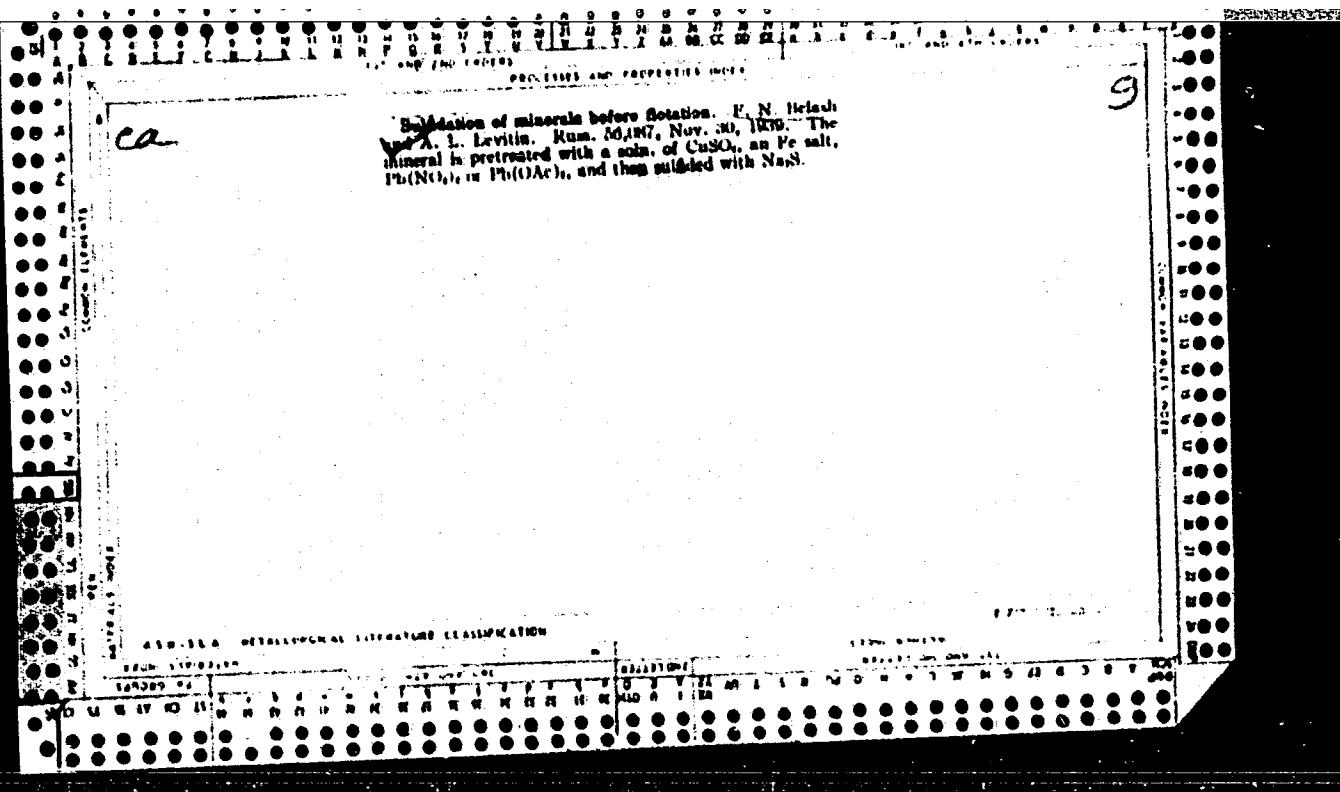


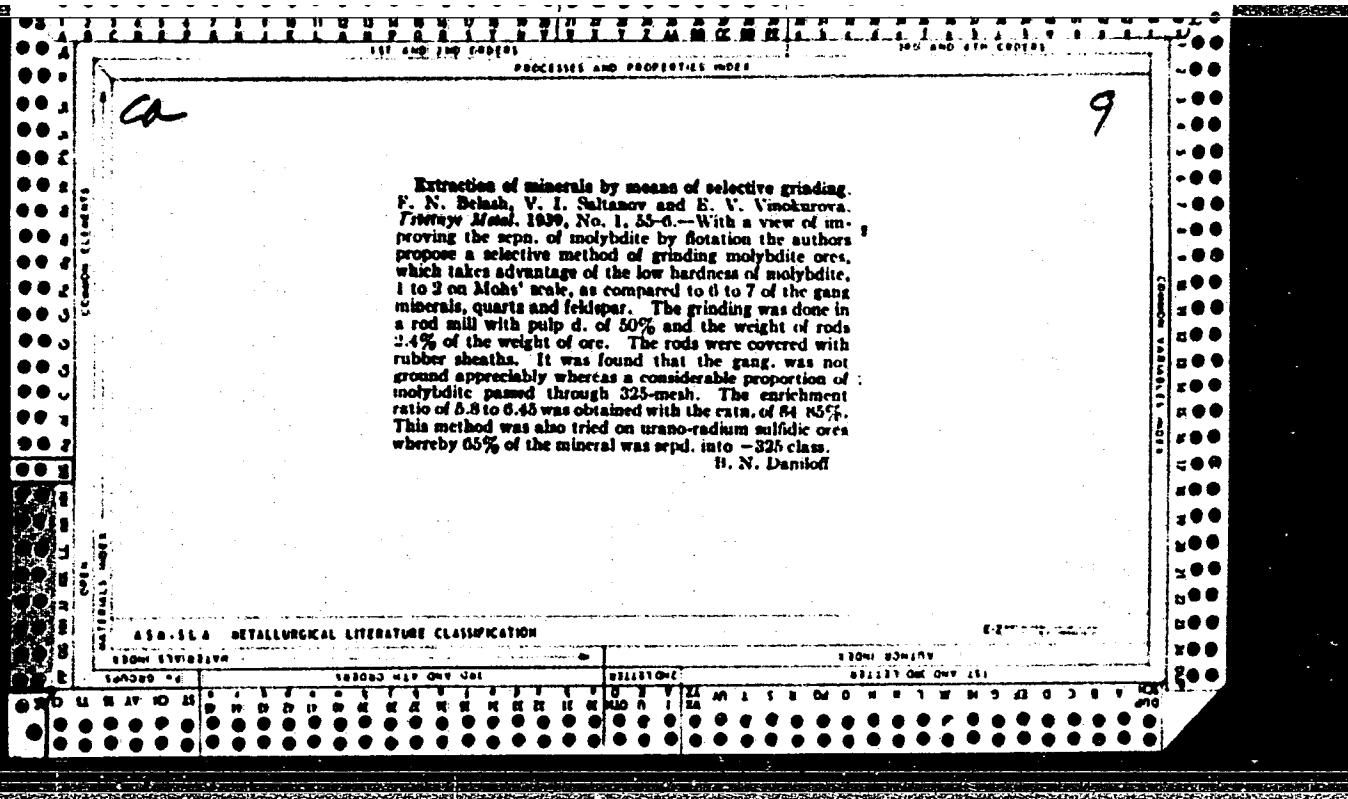
Concentration of Kadam-Dzhal antimony deposits in Central Asia. V. N. Belash and L. A. Lyalikova. *Gorno-Ogorskii Zheleznyj Relyeif*, No. 1, 28-34 (1977). — Expts. on concentr. were conducted by various schemes on a semi plant scale with ore contg. Sb 0.3 and Fe 1.0%. 25.4% of the total Sb is oxidized. The rock consists of quartz, limestone and slate. Concentr. on tables gave a low extrn. of 51.54% Sb. Oxidn. and flotation raised the extrn. to 91.85%. Best results (90%) were obtained by flotation with subsequent concn. of the middling and tailings. Ninety-four % of the sulfide Sb and 80% of the oxidized Sb are extd. in the concentrate and middling, resp. For the flotation of the oxidized Sb, a new method of sulfidization was employed. It consisted of agitating the pulp with $Pb(NO_3)_2$ and CuS_2 and sulfidization with Na_2S . Instead of Hg xanthate, the distillates of peat and of slate tar can be used.

B / Kanch

APPENDIX B METALLURGICAL LITERATURE CLASSIFICATION

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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Experiments in flotation of sulfide-hübnerite ores. F. N. Belash and O. V. Bugina. *Tretye Metal.*, 1930, No. 7, 72-5.—One contg. quartz, muscovite, fluorite, hübnerite, calcite, galena, pyrite and chalcocyprite was subjected to flotation with oleic acid and sodium oleate as frother and collector and water glass and $K_2Cr_2O_7$ as depressors. With wet grinding to minus 100 mesh the results were unsatisfactory because of considerable floatability of quartz. With dry grinding better results were obtained, the loss of WO_3 in tails being 2 to 3.6%. Water glass was found to act as depressor of hübnerite; $K_2Cr_2O_7$ gave better results. In further expts. $K_2Cr_2O_7$ was substituted by ammonium dichromate. Expts. in wet grinding were made using porcelain, steel and cast iron mills and balls in various combinations. Best results were obtained with porcelain mills and balls. Apparently Fe ions from steel mills and balls activate the quartz and float it. Cast iron was found to be still more harmful than Aln steel. The use of porcelain in industry is impracticable; therefore the authors tried them, treatment of the pulp. Addn. of soda to grinding mills prevents transfer of Fe ions into the pulp and prevents activation and flotation of quartz. This method was also found helpful in the flotation of Mo concentrates. Best results are obtained with solid/liquid ratio of 1:4; ratio of 1:2 is acceptable. Recovery of W is 95% with cass., of cass. of 25 and consumption of 70 g. sodium oleate per ton. Expts. also showed that for economy green soap can be substituted successfully for Na oleate and oleic acid.

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000204220009-2"

BILASH, F.M.

Candidate in Technical Sciences.

"Operation of the Kurskzay Antimony Plant" Tsvet. et al. 14, no. 2, Feb. 1939

1939.

"The Problem of Pulp Leakage Through the Slide Gates of Refenold Flotation Machines," Tsvet. Met. 14, no. 3, March 1939

BELASH4F8N8

600

1. BELASH, F. N.

2. USSR (600)

Candidate of Technical Sciences. "Results of the Work of Akins' Classifier in the Kadamedzhaysk Plant". Tsvet Met., 14, No. 4-5, 1939.

9. [REDACTED] Report U-1506, 4 Oct. 1951.

BELASH4F&N8

600

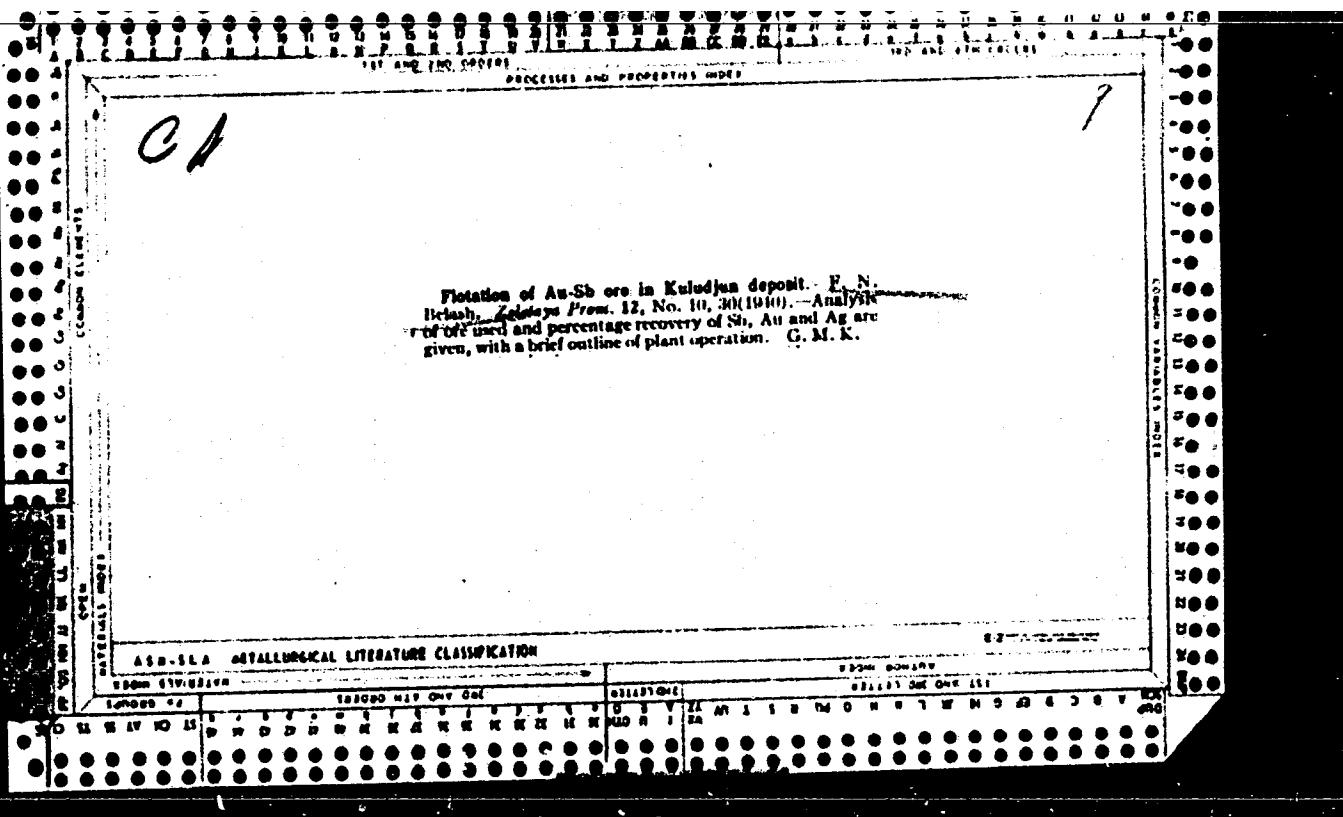
1. BELASH, F.N., SALTANOV, V. I., VINOKUROVA, Ye. V.

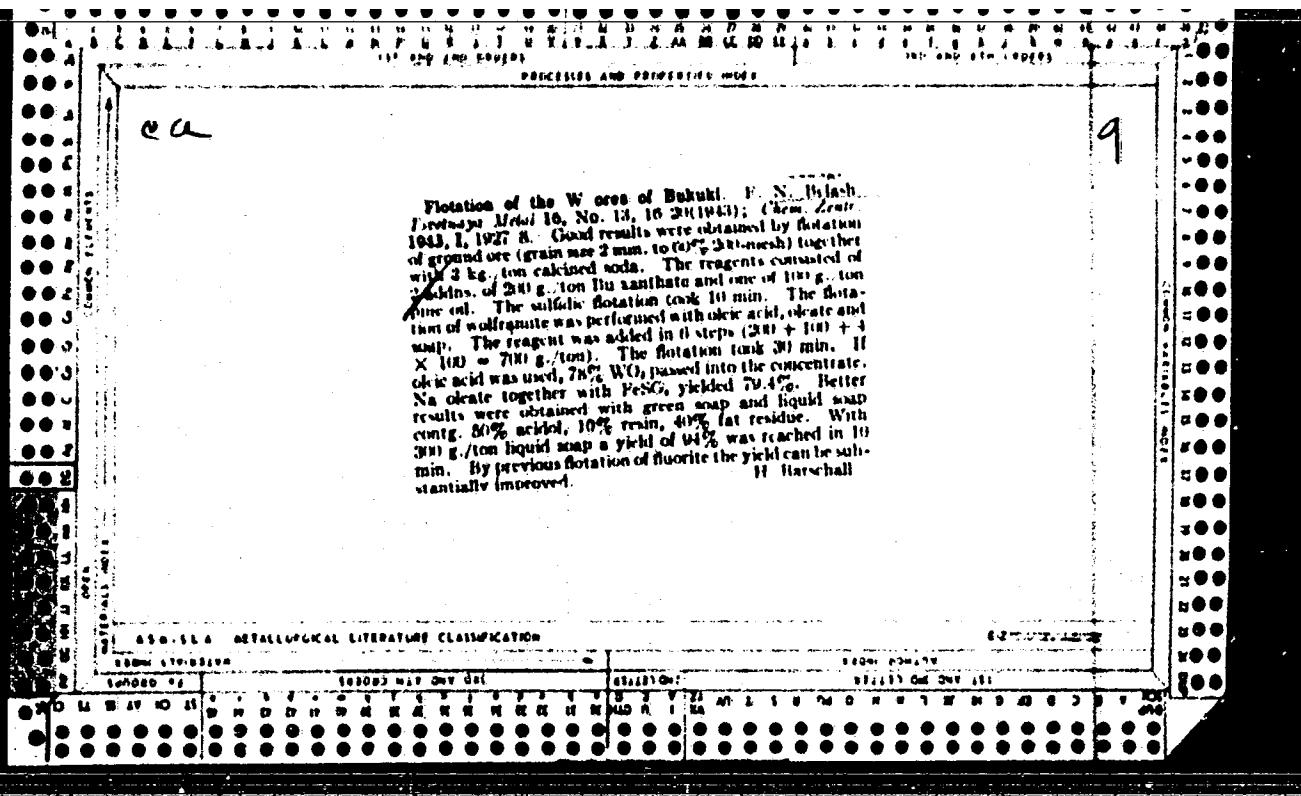
2. USSR (600)

"Giredmet" (State Institute of Rare Metals) Selective Crushing Used for the Extraction of
Minerals Which Are Difficult to Concentrate"
Tsvet. Met. 14, No 6, 1939.

9. [REDACTED] Report U-1506, 4 Oct. 1951.

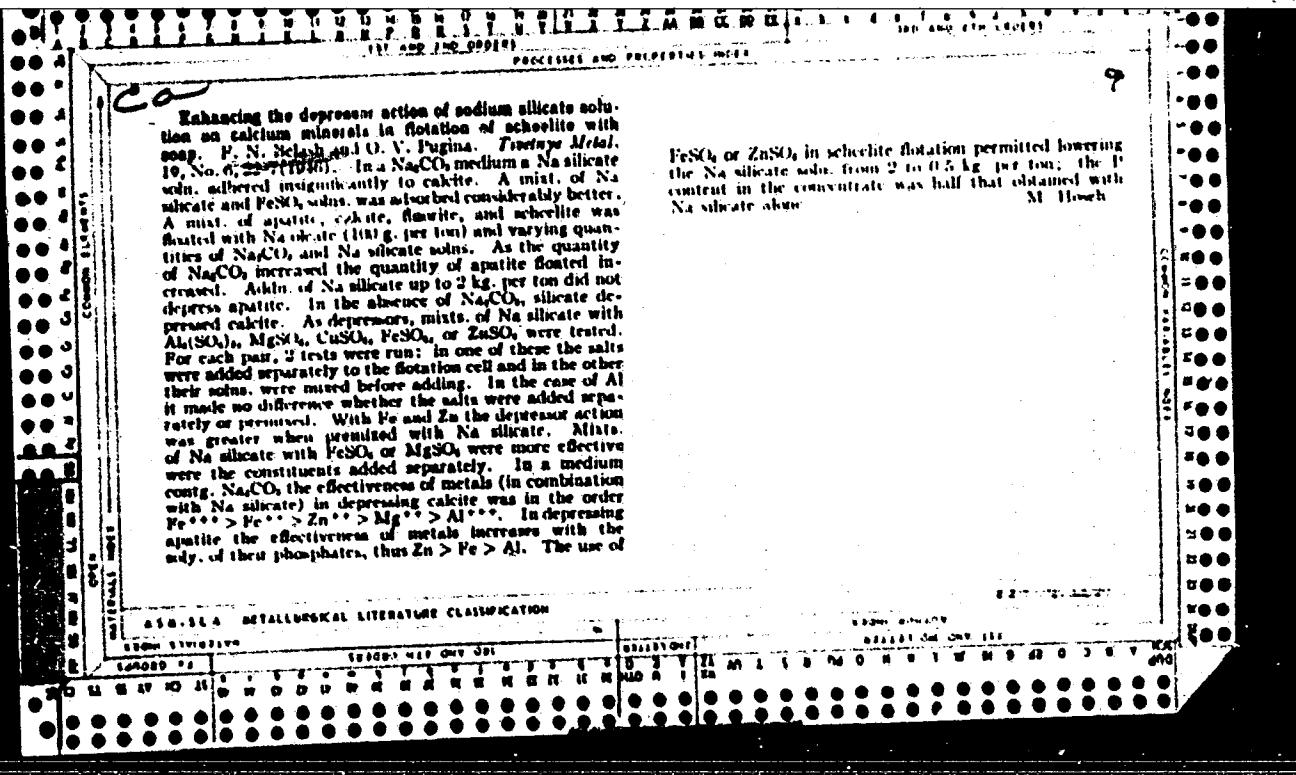
Flotation of scheelite ore of Gambey ore deposits. E. N. Belash and A. A. Vekhov. Tsvetnaya Metal. 1940, No. 3, 45-50. The authors developed a method for flotation of scheelite ores of the district consisting of deactivation and depression of gang minerals, sepn. of sulfides by flotation, and flotation of scheelite. The sulfide flotation is carried out with Bu xanthate and pine oil; scheelite is floated by use of liquid glass and Na oleate; green soap can be substituted for the latter. The losses of WO_3 were 6% in tailings and 2-3% in the sulfide concentrate.
H. N. Daniloff





REILASH, V.N.

Requirements of industry as to the quality of mineral raw materials. Handbook
for geologists—Moskva, Gos. izd-vo geologicheskoi lit-ry Komiteta po delam
geologii pri SSSR SSSR; no. 17, Antimony 1946



BELASH, F. N. Dr. Tech. Sci.

Dissertation: "Investigation of Activation and Depression of Minerals with Corrosion Products of Crushing Bodies and Pulp Slimes During Flotation." Inst. of Mining, Acad. Sci. USSR, 28 Feb 47.

SO: Vechernaya Moskva, Feb, 1947 (Project #17836)

BELASH, Foka Nikiforovich

[Abrasive action of mineral grains during flotation] Abrasive
sivnoe deistvie mineral'nykh zeren pri flotatsii. Murmansk,
1956. 41 p. (MIRA 14:4)

(Abrasion)

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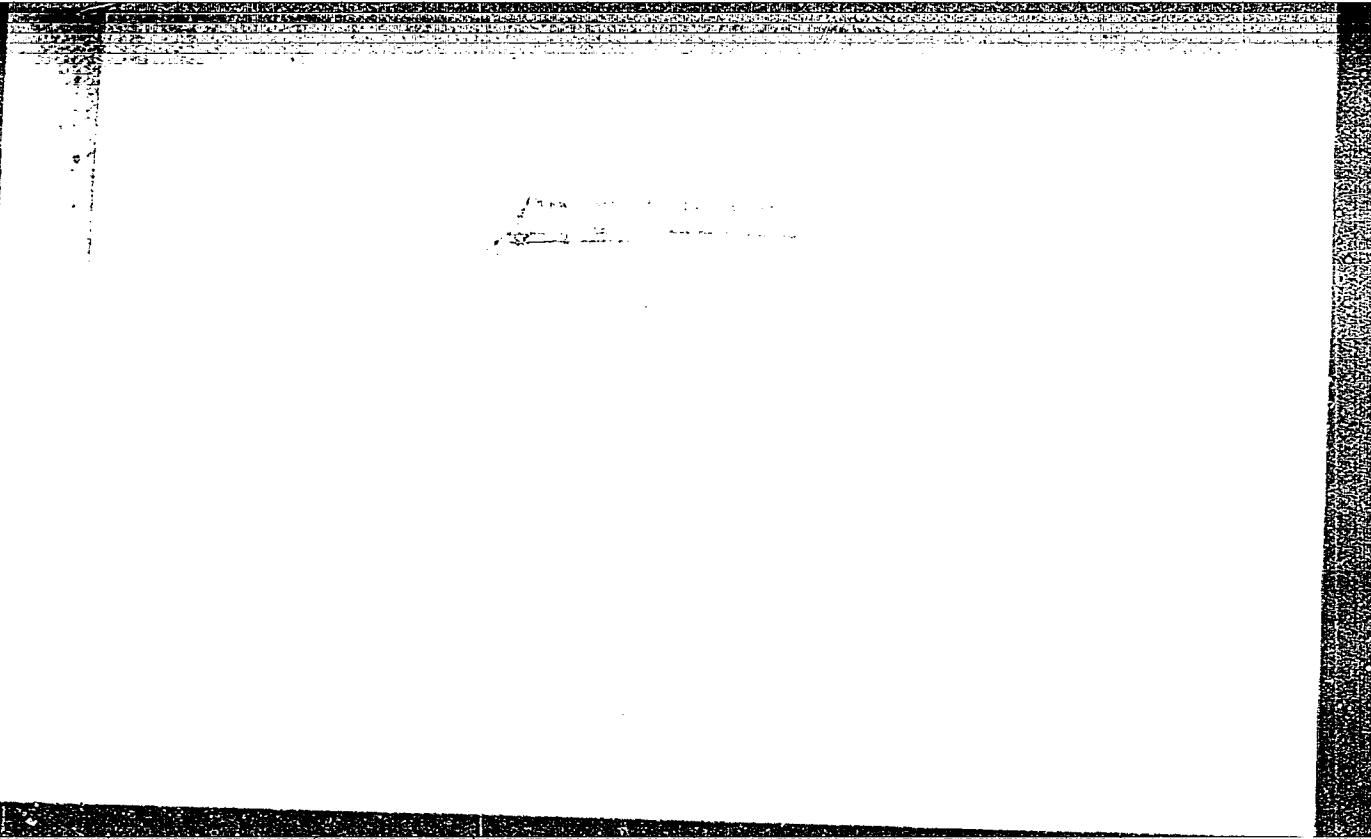
1960-07-06 (UNKNOWN) (UNKNOWN)

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137-58-6-11335

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 11 (USSR)

AUTHORS: Lokonov, M.F., Belash, F.N.

TITLE: Addresses (at the Ore Concentration Section of the Conference
on Problems of Intensifying and Perfecting the Recovery of and
the Processing Techniques for Copper-nickel and Nickel Ores)
[Vystupleniya (na sektsii obogashcheniya Soveshchaniya po
voprosam intensifikatsii i usovershenstovovaniya dobuchi i
tehnologii pererabotki medno-nikelevykh i nikellevykh rud)]

PERIODICAL: Materialy Soveshchaniya po vopr. intensifik. i usoversh.
dobuchi i tehnol. pererabotki medno-nikelevykh rud. 1956
g. Moscow, Profizdat, 1957, pp 316-321

ABSTRACT: Bibliographic entry. Ref. RzhMet, 1958, Nr 6, abstracts
11330-11334

1. Ores--Processing

Card 1/1

137-58-6-11314

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 8 (USSR)

AUTHOR: Belash, F.N.

TITLE: Investigations in the Field of Acid Depression and Activation in the Flotation of Oxidized Minerals (Issledovaniya v oblasti kislotnoy depressii i aktivatsii pri flotatsii okislennykh mineralov)

PERIODICAL: Byul. tsvetn. metallurgii, 1957, Nr 10, pp 20-22

ABSTRACT: Separation of combined concentrates of scheelite, titanium-magnetite, sphene, phosphorite-carbonate, and other non-sulfide minerals subjected to flotation by fatty acids employs treatment of these concentrates by electrolytic reagents, followed by flotation. The acid method is used for selective depression of gangue minerals either in the form of repeat flotation in an acid medium or in the form of treatment of the pulp by a collector with subsequent treatment by mineral acid with or without the presence of an oxidizer. This method was used to separate scheelite-fluorite products in the presence of K bichromate and acid, to fine scheelite concentrate treated by H_2SO_4 in order to depress apatite, to separate zircon and pyrochlore which

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137-58-6-11314

Investigations in the Field (cont.)

undergo separate flotation by oleic acid in hydrochloric-acid and sulfuric-acid mediums, for repeat flotation of oxidized Sb concentrate, for fine cassiterite extracted by flotation from gravitational tailings, and also to fine floatational cassiterite concentrate, the flotation capacity of which is improved by oleic acid after treatment by HCl heated to 60°C. Phosphoric acid treatment was used to depress hubnerite in the flotation of a hubnerite-calcite-fluorite product. The effect of acids on the decomposition of Ca and Fe palmitates was also investigated. The more rapid decomposition of Ca palmitate indicates the possibility of acid depression of Ca minerals in Fe flotation.

L.B.

1. Ores--Processing
2. Minerals--Flotation
3. Fatty acids--Effectiveness
4. Reagents--Applications

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SOV/137-59-1-268

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 1, p 33 (USSR)

AUTHORS: Belash, F. N., Gamilov, M. A.

TITLE: Flotation of Magnetite and Hematite From Olenegorsk Ferrous Quartzites (Flotatsiya magnetita i gematita iz Olenegorskikh zhelezistykh kvartsitov)

PERIODICAL: V sb.: Obogashcheniye polezn. iskopayemykh. Nr 1. Moscow, Metallurgizdat, 1958, pp 81-112

ABSTRACT: Gravitational-concentration tailings contain up to 11-14% Fe. By means of flotation, a concentrate containing 62% Fe may be obtained while the Fe content in the tailings may be reduced to 4-5%. The extraction of the Fe at the plant may be increased to 85-91% by means of flotation of Fe minerals contained in jiggling tailings and in the overflow of the dewatering classifiers. Basic flotation is carried out in a neutral medium, whereas the purification of the froth products is conducted in a weakly acidic medium. The following flotation reagents are employed: Sodium oleate or distilled tallol in quantities of 150-200 g/ton; 100 g/ton of H₂SO₄ are used for purposes of additional refining. Under shop conditions the process of basic flotation

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Flotation of Magnetite and Hematite From Olenegorsk Ferrous Quartzites

requires 6 minutes, that of control flotation 4 minutes. Four stages, each of a duration of three minutes, are employed in the refining of concentrate.

M. M.

Card 2/2

LUCOVSKIY, S.I., prof., doktor tekhn.nauk; BELASH, F.N., prof., doktor tekhn.nauk; STESHENKO, A.I., prof.; KITACH, G.M., dots.; GOLUBOV, N.A., dots.; MARTYNOV, dots.

V.V. Kulikova's article "Regular pattern of flow of loose materials.". Nauch.dokl.vys.shkoly; gor.delo. no.4:41-46
'58. (MIRA 12:1)

(Ore handling)

BELASH, F.N.; PUGINA, O.V.

Fleotation extraction of wolframite and other valuable components from
the compound wolframite ores of Transbaikalia. Izv. Sib. otd. AN SSSR
no.8:61-70 '58. (MIRA 11:10)

I.Kol'skiy filial AN SSSR.
(Transbaikalia--Wolframite) (Fleotation)

AUTHOR: Belash, F. N. (Krivoy Rog) SOV/24-58-11-36/42

TITLE: Oxide Depression and Activation During Flotation of
Oxidised Minerals (Kislotnaya depressiya i aktivatsiya
pri flotatsii okislenykh mineralov)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh
Nauk, 1958, Nr 11, pp 131-135 (USSR)

ABSTRACT: On the basis of the experiments described in this paper,
the following conclusions are arrived at:
1) The investigations have shown the effectiveness of
acidic activation during flotation of valuable components
from ores which are difficult to beneficiate and for
extracting some concentrates of rare metals.
2) Investigation of the chemical compounds of fatty acids
with metals during flotation can extend considerably the
knowledge on the mechanism of the interaction of reagents
with the surface of the minerals. The practical results
of such investigations can be the finding of new
effective methods of flotation, in addition to determining
optimum conditions of the selective separation of

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SOV/24-58-11-36/42

Oxide Depression and Activation During Flotation of Oxidised Minerals

minerals.

There are 2 tables, 5 figures and 9 references, 6 of which are Soviet, 3 English.

SUBMITTED: April 4, 1956

Card 2/2

AUTHORS:

SOV/127-58-2-25/26
Belash, E.N., Doctor of Technical Sciences, Professor; De-
litsina, G.B., Karmazin, V.I. and Kharlamov, V.S., Candidates
of Technical Sciences, Azarov, A.L., Dolotova, I.A. and
Rovenskiy, I.I., Engineers

TITLE:

The Concentration and Agglomeration of Minerals in North-
Western Regions of the USSR (Obogashcheniya i aglomeratsiya
poleznykh iskopayemykh Severo-Zapadnykh rayonov SSSR). Le-
ningrad, Mekhanobr, 1957, vol. 102, 344 pp. with illustrations.
Circulation 1,700. Price 12 rubles. (Leningrad, Mekhanobr,
1957, vyp. 102.344 str.s ill. Tirazh 1,700. Tsena 12 rub.)

PERIODICAL:

Gornyy zhurnal, 1958, Nr 12, pp 67 - 69 (USSR)

ABSTRACT:

This is a review of the above mentioned book.

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BELASH, F.N., doktor tekhn.nauk

Dust collecting during drilling by means of the condensation
of steam. Bor'ba s sil. 3:82-85 '59. (MIRA 12:9)
(DUST--REMOVAL) (BORING)

EEIASH, F.N., doktor tekhn.nauk

Relation between the flocculating and coagulating action of dust-wetting additives and a reduction in the dust in the air during drilling. Sbor. nauch. trud. KGRI no.7:349-359 '59.

(MIRA 16:9)

(Mine dusts--Prevention)
(Drilling fluids--Equipment and supplies)

BELASH, F.M., prof.

Means of accomplishing flotation of ferric oxides in the Krivoy
Rog Basin. Isv. vys. ucheb. zav.; gor. zhur. no.3:123-133 '60.
(MIRA 14:5)

1. Krivorozhskiy gornorudnyy institut. Rekomendovana kafedroy
obogashcheniya poleznykh iskopayemykh.
(Krivoy Rog Basin—Flotation)

BELASH, F.N., prof., doktor tekhn.nauk; PUGINA, O.V., inzh.

Flotation of iron oxides in the Krivoy Rog Basin. Gor.zhur.
no.9:55-59 S '60. (MIRA 13;9)

1. Krivorozhskiy gornorudnyy institut.
(Krivoy Rog Basin--Iron ores) (Flotation)

BELASH, P.N., prof.; ANDREYEVA, A.I., inzh.

Flotation of hematite, martite and magnetite by fatty acids in
various media. Izv. vys. ucheb. zav.; gor. zhur. no.12:165-170
'60. (MIRA 14:1)

1. Krivoroshkiy gornorudnyy institut. Rekomendovana kafedroy
obogashcheniya poleznykh iskupayemykh Krivoroszhskogo gornorudnogo
instituta.

(Iron ores)

(Flotation--Equipment and supplies)